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(12) **United States Patent**  
**Kiko**

(10) Patent No.: **US 6,212,259 B1**(45) Date of Patent: **Apr. 3, 2001**(54) **IMPEDANCE BLOCKING FILTER CIRCUIT**(75) Inventor: **Frederick J. Kiko, Carlsbad, CA (US)**(73) Assignee: **Excelsus Technologies, Inc., Carlsbad, CA (US)**

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(63) Continuation-in-part of application No. 09/370,137, filed on Aug. 9, 1999, which is a continuation-in-part of application No. 09/195,522, filed on Nov. 19, 1998.

(51) Int. Cl.<sup>7</sup> ..... **H04M 1/24; H04M 1/00**(52) U.S. Cl. .... **379/34; 379/1; 379/8; 379/30; 379/377; 379/412**(58) Field of Search ..... **379/1, 8, 27, 30, 379/32, 34, 372, 377, 378, 387, 394, 398, 401, 403, 404, 407, 411, 412, 414, 441, 442, 445**(56) **References Cited****U.S. PATENT DOCUMENTS**4,613,732 \* 9/1986 Cwizen et al. .... 379/412  
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An impedance blocking filter circuit is provided for use in telecommunication systems for interconnecting between incoming telephone lines and customer's terminal equipment so as to unconditionally block impedances above 20 KHz due to the customer's terminal equipment from an ADSL network unit and/or home networking interface unit. The filter circuit includes first, second, and third inductors connected in series between a first input terminal and a first common point. A first resistor has its one end connected also to the first common point and its other end connected to a first output terminal. Fourth, fifth and sixth inductors are connected in series between a second input terminal and a second common point. A second resistor has its one end also connected to the second common point and its other end connected to a second output terminal. A capacitor has its ends connected across the first and second common points. In other aspects, the filter circuit also includes switching means for eliminating shunt additive capacitance, correction circuit means reducing significantly return loss, and switch suppression circuit means for eliminating transients.

**17 Claims, 9 Drawing Sheets**